Measuring the Value of Intel® Core™2 Processor with vPro™ Technology in the Enterprise

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Introduction

Ever since the advent of the modern PC-based enterprise, CIOs and network managers have consistently looked to their vendors for ways to enhance systems and processes, reduce support costs, harden security measures, improve internal customer satisfaction, create competitive advantage through IT and, of course, do more with less.

Leading IT companies have chipped away at this wish list year after year. Intel's latest effort, Intel® Core™2 processor with vPro™ technology, is the culmination of a large-scale initiative to address all of the above issues and more. Released in September of 2006, business desktop PCs with the Intel Core 2 processor with vPro technology offer a promising mix of built-in manageability, proactive security, and energy-efficient performance capabilities. Key technical components include the Intel® Core™2 Duo processor, the Intel® Q965 Express chipset with the ICH8-DO Southbridge, the Intel® 82566DM Gigabit Platform LAN Connect, Intel® Active Management Technology (Intel® AMT)[1], and Intel® Virtualization Technology (Intel® VT)[2]. Moreover, compliance with the Intel® Stable Image Platform Program (Intel® SIPP) is a key advantage of most Intel Core 2 processor with vPro technology-based systems.[3] Intel SIPP enables a more predictable annual transition from one generation of technology to the next by ensuring no required changes to key platform components or drivers for at least 15 months from introduction. This allows for a 3-month qualification period and a 12-month deployment cycle.

This paper presents the results of research, sponsored by Intel and conducted by Wipro Product Strategy & Architecture (PSA) practice, designed to examine the potential impact of Intel Core 2 processor with vPro technology on the total cost of ownership (TCO) for business desktop PCs. This analysis examines how the Intel Core 2 processor with vPro technology can help reduce infrastructure complexity, and how the technology affects manageability and IT costs. In addition, this research extends concepts originally described in Wipro's *New Insights on PC Management* study[4], which detailed the relationship between infrastructure complexity and overall PC support costs.

Executive Summary

Intel designed the Intel® Core™2 processor with vPro™ technology to have a significant positive impact on IT efficiency. Moreover, Intel's expectation is that enterprises that deploy Intel Core 2 processor with vPro technology-based PCs as part of a comprehensive PC refresh program can expect to reduce hardware complexity and realize concomitant cost savings. In order to measure potential benefits, Wipro surveyed senior IT managers from 40 companies in a variety of industries about current desktop management activities and costs that could potentially be reduced by PCs with Intel Core 2 Processor with vPro technology. (See Figure 1 below.)

Industries Surveyed for This Study	
Aerospace Manufacturing	Healthcare
Biotech	Insurance
Education	Legal
Energy	Manufacturing
Engineering	Pharmaceuticals
Financial Services	Retail
Government	Transportation

FIGURE 1. Wipro surveyed the opinions of senior IT managers representing these industries.

In the 40 companies whose IT managers were surveyed, PC fleet sizes ranged from 2,900 to 275,000 systems. Using the mean average of those systems (32,000 desktops) and additional information gleaned from survey responses concerning the IT tasks that are typically performed today, Wipro created an enterprise model as a basis for comparison. (See Appendix B.) Then Wipro estimated the cost of PC hardware management inefficiencies to the enterprise model and the savings that the Intel Core 2 processor with vPro technology could bring about by reducing those inefficiencies. Assuming that no solution can eliminate all costs (e.g., some problem resolutions will always require deskside visits), Wipro based results on a conservative assumption of reductions of 80 percent due to Intel Core 2 processor with vPro technology implementation.

Within this framework, Wipro determined the following:

1. A company with 32,000 desktops and a 4-year refresh cycle is projected to achieve desktop management cost reductions of approximately $986,000 in year one of the refresh to over $7,600,000 in year five, when the entire installed base features PCs with Intel Core 2 processor with vPro technology.

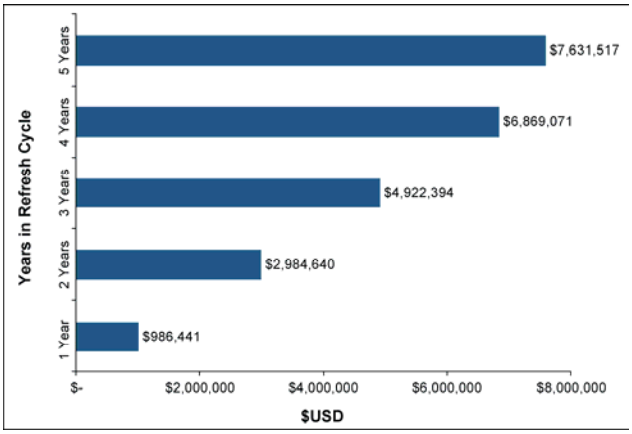


FIGURE 2. Estimated yearly desktop management-related net savings due to installation of PCs with the Intel® Core™2 processor with vPro™ technology in a company with 32,000 desktops using a 4-year refresh cycle.

The largest savings are obtained from reducing yearly costs of resolving the following automated desktop management failures (all numbers are rounded):

- **Major hardware malfunctions:** estimated savings from $2,000,000 to $325,000.
- **Major software malfunctions:** estimated savings from $1,800,000 to $290,000.
- **Patch deployment failure resolution:** estimated savings from $399,000 to $119,000.
- **Audit failure resolution:** estimated savings from $346,000 to $111,000.

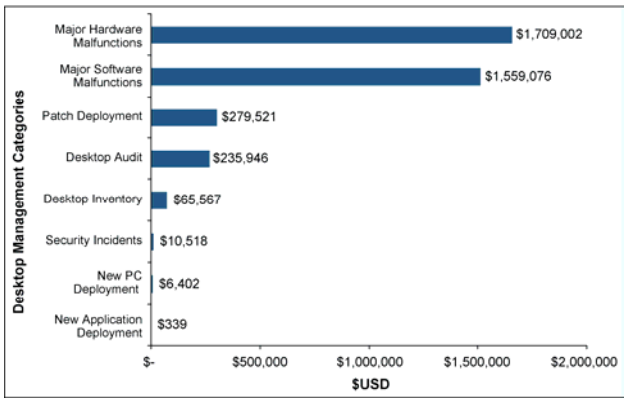


FIGURE 3. Estimated annual desktop management savings due to PCs with Intel® Core™2 processor with vPro™ technology, 4-year refresh cycle, in a company with 32,000 desktops (the average in our survey).

Widespread deployment of PCs with the Intel Core 2 processor with vPro technology can drive down hardware complexity, resulting in reduction in hardware-related IT support costs. This is primarily due to the efficiencies gained when a PC installed base is Intel® SIPP-compliant. For example, in a U.S. company with 32,000 desktops and non-Intel SIPP-compliant PCs, the hardware-related IT support costs would fall from $9,982,146 to $9,180,408 if the model company's installed base was transformed to 100 percent Intel SIPP-compliant. The result would be an estimated annual savings of slightly more than $800,000, with a net reduction of approximately 8 percent.

Even though PCs with the Intel Core 2 processor with vPro technology are initially expected to be more expensive than typical mid-range business PCs, the business benefits that can be realized from PCs with the Intel Core 2 processor based on vPro technology more than cost-justify the wide adoption of PCs based on this new technology.

Projected Benefits of PCs with Intel® Core™2 Processor with vPro™ Technology

The main objective of this study is to closely examine the effect that the adoption of the Intel Core 2 processor with vPro technology can have on PC management and related costs. To that end, Wipro analysts focused on the benefits of Intel® Active Management Technology (Intel® AMT) and Intel® Virtualization Technology (Intel® VT). They are two key components of the Intel Core 2 processor with vPro technology that Wipro felt were most likely to have a clear, quantifiable impact on Total Cost of Ownership (TCO) of the PC installed base. In fact, these two technologies alone have the potential to reduce or eliminate entire categories of IT support costs for PCs. Their benefits are as follows:

- **Dramatically improved management of major hardware and software malfunctions**. Since Intel Core 2 processor with vPro technology agents are available and operational even when the PC itself will not boot, IT will benefit from the ability to query the deployed hardware and software configuration, remotely boot and test the system from a management console, and then take remedial action (including ordering a new PC in the event the system is unrepairable) without time-consuming deskside visits or user intervention.
- **Improved remote asset inventories**. PCs with the Intel Core 2 processor with vPro technology are easier to correctly identify, whether or not the PCs are powered on. This can result in a net reduction of inventory failures, audit failures, re-counts, and misidentification of assets. Based on Wipro research, between 68% and 91% of this remedial work can be eliminated with an installed base of Intel Core 2 processor with vPro technology-based PCs.

- **Easier and faster software deployment**. The Intel Core 2 processor with vPro technology can enable application and patch deployments—including security updates—to occur more rapidly, with dramatically reduced times for recovery from failed deployments. Likely reductions are attributable to simplification of problem diagnosis, elimination of most deskside visits, and fewer failed deployments due to misidentification of target systems. In addition, by deploying security updates more promptly, IT managers can minimize the time it takes to close any windows of vulnerability.
- **More effective hardware deployment**. The Intel Core 2 processor with vPro Technology allows IT departments to minimize diagnosis, troubleshooting and physical deskside visits associated with failed deployments of new PCs.
- **More efficient and faster response to security incidents**. Often the best response to security incidents such as worms or virus attacks is the swift reconfiguration of ports and network connectivity by management software. The Intel Core 2 processor with vPro Technology can make IT personnel more responsive by virtually eliminating the cases where manual effort is required to achieve reconfiguration.

INTEL® SIPP BENEFITS

Previous Wipro research into the relationship between desktop hardware complexity and IT support costs shows a direct correlation between the numbers of deployed hardware configurations and hardware-related IT support costs. (See Wipro white paper, *New Insights on PC Management.* [4]) For each distinct hardware configuration in an enterprise's installed base, firms incur an additional average cost of $12 per PC per year, made up of additional testing, deployment and help desk labor. For a firm with 32,000 PCs, this means an average of $384,000 in additional spending for every configuration. Because Intel® SIPP specifies timing and alignment of an OEM's hardware configuration introductions, it effectively eliminates those types of surprises. By bringing Intel SIPP-regulated PCs into a structured refresh cycle, companies can reduce the number of deployed configurations by up to 35 percent. Thus, there is the potential for substantial savings for companies that migrate to the Intel Core 2 processor with vPro Technology.

COMPONENTS THAT CONVEY ADDITIONAL BENEFITS

Other potential areas of benefit related to Intel Core 2 processor with vPro technology-based PC adoption that are not directly measured by this study include:

- Increased data reliability and reduced recovery times enabled by on-board Intel® RAID Controller of the Intel Core 2 processor with vPro technology
- Reduced power consumption due to Intel® Intelligent Power Capability
- Business productivity improvements due to technologies such as Intel® Wide Dynamic Execution, Intel® Advanced Smart Cache and Intel®Advanced Digital Media Boost

The benefits listed above by no means constitute the entire business value of the Intel Core 2 processor with vPro technology, and may only be the tip of the proverbial iceberg. Software vendors and system designers will undoubtedly use the Intel Core 2 processor with vPro technology to deploy innovative solutions that further enhance the potential for lower costs and greater efficiencies.

Potential IT Cost Savings

Wipro's survey of IT representatives from 40 North American companies brought to light many IT support processes and associated costs that the Intel Core 2 processor with vPro technology could positively affect. Survey responses indicate that there are two major cost savings opportunities:

1. Lower desktop management support costs
2. Lower hardware-related IT support costs

DESKTOP MANAGEMENT SUPPORT COST SAVINGS

Lower desktop management support costs for PCs can be achieved due to the impact of the Intel Core 2 processor with vPro technology on the following system management processes:

- Initial PC deployment—expediting the process of bringing desktop systems into active business use
- Application and patch deployment—delivering software applications, service packs and incremental updates to the desktop user even when PCs are turned off
- Audit and inventory—reliably recording desktop system identification and configuration data
- Resolving major hardware and software malfunctions—resolving "blue screen" and "black screen" incidents or other system instability issues that make desktop PCs unusable
- Addressing security incidents—remote reconfiguration of a PC's network or security settings to avoid system compromise

For these processes, the Intel Core 2 processor with vPro technology can reduce costs by minimizing or eliminating the failure analysis and desk-side visits due to management software errors, agent mis-configuration, or system unavailability (i.e., being turned off). Wipro researchers reviewed the current costs of failure resolution and manual intervention for automated desktop management processes within the 40 surveyed companies. Our analysis shows that while the failure analysis and resolution costs would be lower in all categories if PCs were enabled by the Intel Core 2 processor with vPro technology, major cost savings are most likely to be achieved in areas noted in Figure 4. Where failures would have been resolved except for agent mis-configuration, machines being turned off, or management technology malfunction, the Intel Core 2 processor with vPro technology should be able to eliminate all manual effort or shipping of PCs, reducing failure resolution effort to the amount of work required to perform root cause analysis.

Areas of IT Support with the Most Cost Savings Potential

Cost Saving Category	Current Annual Cost of Failure Resolution and Manual Intervention for Selected Failure Types*	Estimated Annual Savings Enabled by Intel® Core™2 Processor with vPro™ Technology	Estimated Savings Percentage with Intel® Core™2 Processor with vPro™ Technology
Major Hardware Malfunctions	$ 2,034,526	$ 1,709,002	84%
Major Software Malfunctions	$ 1,856,042	$ 1,559,076	84%
Patch Management Failures	$ 399,316	$ 279,521	70%
Audit Failures	$ 346,980	$ 235,946	68%

FIGURE 4.Current annual cost of failure resolution and estimated Intel® Core™2 processor with vPro™ technology cost savings.
**Selected Failure Types include PC turned off or otherwise not active, management agent mis-configured, more management software malfunction, where PC would otherwise be manageable and problem solvable "down to the wire."*

Refer to "Yearly Cost Savings" below for more details.

HARDWARE-RELATED IT SUPPORT COST SAVINGS

Most organizations will experience lower hardware-related IT support costs as a by-product of implementing Intel Core 2 processor with vPro technology-based PCs. This happens because, as noted above, the majority of Intel Core 2 processor with vPro technology-based PCs are backed by Intel® SIPP, which has a direct impact on lowering hardware complexity over time.

Wipro has been able to directly measure the impact of Intel SIPP support and assign a monetary value to it.[5] Savings are related to the proliferation of disparate PC configurations throughout the enterprise that occurs *without* Intel SIPP. For each additional hardware configuration

(see Glossary, Appendix C) deployed in the installed base, enterprises incur approximately $12 per PC per year in additional hardware-related costs.

Desktop PCs that are Intel SIPP-compliant provide companies with a reliable and planned schedule of validated configurations. The net effect over time is to reduce the number of PC configurations deployed by an IT organization, thereby reducing desktop configuration management costs in direct proportion to the reduction in configurations. Analysis of our existing data suggests that Intel SIPP can reduce the number of deployed configurations substantially while eliminating work (i.e., testing and qualifying new configurations) associated with unscheduled vendor changes of hardware configurations such as video cards and NICs.

The model company referenced in this survey supports 36 hardware configurations in an installed base of 32,000 PCs. If this firm were to move completely to Intel Core 2 processor with vPro technology-based PCs (i.e., from 0% to 100% Intel SIPP-compliant), the number of configurations would decrease by 35 percent, potentially reducing hardware-related IT support costs by slightly more than $800,000 per year and a total of $3.2 million over four years.

Of course, enterprises that have already begun to standardize on Intel SIPP-compliant PCs will see a benefit that is proportional to the remaining installed base that is not Intel SIPP-compliant.

Please refer to "Yearly Cost Savings" below for more details.

Projected Net Benefits of Deploying the Intel® Core™2 Processor with vPro™ Technology

Our analysis shows that our model company of 32,000 desktops should achieve savings in a range of approximately $2.65 million over two years, if a one-year refresh cycle is used, to over $23 million over five years if a four-year refresh cycle is used. In this analysis, we assume that PCs with the Intel Core 2 processor with vPro technology are phased in via a company's normal refresh cycle. (See Wipro's *New Insights on PC Management* white paper for more information.)

The projected net benefits of deploying PCs with the Intel Core 2 processor with vPro technology were obtained by balancing the one-time and per-PC implementation costs against yearly savings. Since we assume that PCs with the Intel Core 2 processor with vPro technology are phased in via a company's normal refresh process, yearly savings increase as the refresh cycle proceeds.

IMPLEMENTATION COSTS

Both one-time and per-PC implementation costs have been included in our analysis:

- **One-time implementation costs**. These costs are incurred in the first year of implementation of the Intel Core 2 processor with vPro technology:
  - Training of IT installation and support staff
  - Staff / consulting costs associated with re-engineering the IT installation and supporting processes to include Intel Core 2 processor with vPro technology-specific activities
  - Engineering costs to integrate the Intel Core 2 processor with vPro technology features and capabilities with an existing inventory, trouble ticketing system, alert/event database(s), etc.
- **Per-PC implementation costs**. These costs are incurred as the PCs are installed:
  - OEM Intel Core 2 processor with vPro technology charge – additional premium charged by OEMs for Intel Core 2 processor with vPro technology-based PCs

- Configuration cost – additional cost of configuring PCs with the Intel Core 2 processor with vPro technology
- Inventory cost – additional cost to install PCs with the Intel Core 2 processor based on vPro technology during an inventory update

It is assumed that there is no additional license charge by Independent Software Vendors for desktop management / security software to support PCs with the Intel Core 2 processor with vPro technology, as this support will be included in their normal release updates.

In our model, the overall one-time implementation costs are $217,793. Per-PC implementation costs, at $9.00 / PC, are approximately $50,000 per year for 8,000 PCs.

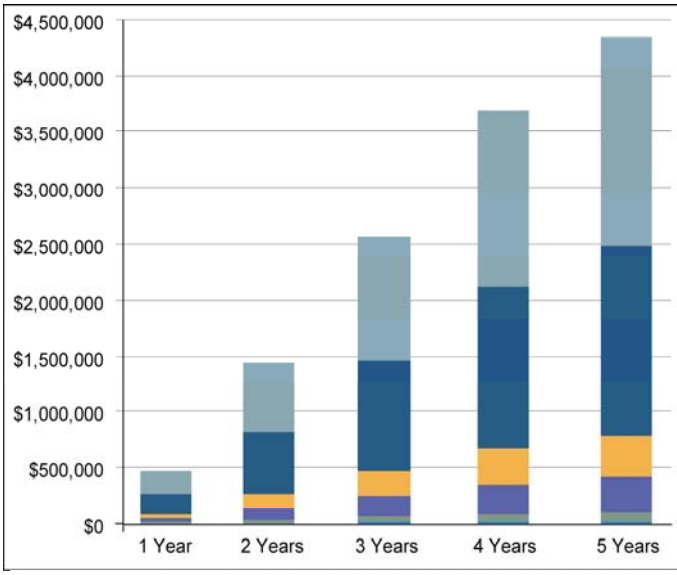
YEARLY COST SAVINGS

As previously described, PCs with the Intel Core 2 processor with vPro technology can provide companies with lower desktop management support costs. Overall cost savings were calculated by assuming PCs with the Intel Core 2 processor with vPro technology are phased in evenly over each year until the entire installed base is covered. For an organization with a four-year refresh, this assumes that 25 percent of the PCs at the end of year one would have the Intel Core 2 processor with vPro technology, 50 percent at the end of year two, etc.

Companies realize lower management and resolution costs in the following categories of IT support as Intel Core 2 processor with vPro technology-based PCs are installed:

MANUAL FAILURE RESOLUTION COST SAVINGS

PCs with the Intel Core 2 processor with vPro technology can lower the number of PC failures, thereby reducing support time spent in failure analysis and deskside visits. For our model company with a four-year refresh cycle, the annual manual failure resolution savings grow from slightly over $480,000 in year one, when 25 percent of the PCs have the Intel Core 2 processor with vPro technology, to more than $4.4 million in year five, when the entire installed base has the Intel Core 2 processor with vPro technology. For our model company with a four-year refresh, the yearly projected cost savings related to deploying PCs with the Intel Core 2 processor based on vPro technology are shown in Figure 5 below.



	1 Year	2 Years	3 Years	4 Years	5 Years
New Application Deployment	$35	$107	$190	$274	$323
New PC Deployment	$703	$2,132	$3,792	$5,467	$6,444
Security Incidents	$1,299	$3,934	$7,000	$10,090	$11,895
Desktop Inventory	$9,235	$27,981	$49,784	$71,761	$84,594
Desktop Audit	$34,698	$105,135	$187,053	$269,628	$317,847
Patch Deployment	$39,932	$120,993	$215,267	$310,298	$365,789
Major Software Malfunctions	$185,604	$562,381	$1,000,574	$1,442,280	$1,700,208
Major Hardware Malfunctions	$203,453	$616,461	$1,096,793	$1,580,975	$1,863,706
TOTAL	$474,959	$1,439,124	$2,560,454	$3,690,773	$4,350,806

FIGURE 5. Estimated desktop management-related cost savings associated with Intel® Core™2 Processor with vPro™ technology-based PC deployment.

HARDWARE-RELATED IT SUPPORT COST SAVINGS

Underlying yearly cost savings is the assumption that an organization is transitioning to using Intel® SIPP as the PCs with the Intel Core 2 processor with vPro technology are being installed. Consequently, the number of models supported and complexity of support will decrease as Intel SIPP-compliant PCs are deployed. For our model company, the annual cost savings due to Intel SIPP grow as PCs with the Intel Core 2 processor with vPro technology are installed—from approximately $800,000 in year one to $3.2 million in year five, when the entire installed base has the Intel Core 2 processor with vPro technology.

Conclusion

Year after year, IT executives have the unenviable responsibility of assessing the value of the PC installed base and making purchasing decisions that can have a profound impact on end-user productivity and job satisfaction, not to mention an enterprise's bottom line. For many CIOs and network managers, the difficulty of this task is compounded by the sheer quantity of variables involved—multitudes of hardware and software configurations in various lifecycle stages, plus new technologies that, upon implementation, may or may not live up to vendors' claims.

Intel designed the Intel Core 2 processor with vPro technology to enhance IT efficiency and, as part of a comprehensive PC refresh program, to reduce hardware complexity. Based on Wipro's survey of 40 companies and the resulting enterprise model, Wipro was able to estimate how much PC hardware management inefficiencies were costing the enterprise model, and the extent to which the Intel Core 2 processor with vPro technology can reduce or eliminate those inefficiencies and their associated costs. Wipro analysts concluded that the benefits of adopting Intel Core 2 processor with vPro technology-based PCs as part of a structured refresh cycle could be substantial, and that those benefits clearly outweigh the additional upfront cost of purchasing PCs based on the Intel Core 2 processor with vPro technology professional platform as compared to other mid-level business platforms.

Appendices

APPENDIX A.
RESEARCH METHODOLOGY

In 2006, Wipro PSA consultants and technical architects interviewed CIOs, IT directors, and senior IT managers at 40 companies with headquarters in North America. We selected a representative sample of firms which had:

- An average of 32,000 desktops covering over 40 locations
- 75 percent of all desktops supported with automated desktop management software
- More than 100 applications deployed per year

Wipro PSA selected subject companies to represent a diversity of industries, management practices, and user distributions, ranging from 2,900 to 275,000 desktops. All interview participants are actively involved in the planning and execution of the management processes discussed in the survey. The specific assumptions used to model the representative organization and desktop support environment, based on the survey participant profile, are noted in Appendix B.

All the companies surveyed rely on in-house personnel to conduct the IT business processes analyzed in this study. Some use contract staff for certain roles but retain final control and accountability within the organization. This ensured that all reporting reflected direct, hands-on experience with actual management practice.

For this study, Wipro analysts compared the standard set of support capabilities and related IT activities against the capabilities and activities associated with the Intel® Core™2 processor with vPro™ technology in order to identify the areas in which Intel vPro technology would have a significant impact. Based on this comparison, researchers concluded that the Intel Core 2 processor with vPro technology can mitigate the cost and labor requirements required to investigate and resolve:

- PC deployment failures
- Application deployment failures
- Patch management failures
- Audit failures
- Inventory failures
- Major hardware malfunctions
- Major software malfunctions
- Security incidents

Effort and costs are reduced by:

- Eliminating and minimizing manual tasks, such as deskside visits, shipping or transporting of PCs, or inefficient remote problem diagnosis.
- Reducing indirect IT support costs due to the lowering of overall desktop complexity, realized by migrating to Intel SIPP-compliant, Intel Core 2 processor with vPro technology-based PCs. Prior research by Wipro has shown a direct correlation between hardware complexity and overall support costs.
- Increasing the capabilities provided by automated desktop management and security software.

Costs and savings were calculated using the average burden rate of the surveyed companies, shown in Appendix B.

APPENDIX B.
ASSUMPTIONS USED TO MODEL A REPRESENTATIVE ENVIRONMENT

North American Company Average	Value
Number of Desktops Managed	32,000
Number of Desktop Hardware Vendors Supported	3
Refresh Cycle	4 year
Percentage of Desktops Supported by Automation Management Software	75%
Number of Desktop PC Applications Deployed Per Year	102
Number of PC Models Deployed Per Year	8
Number of Desktop PC Inventories Per Year	10
Patches, Audits and Security Incidents Per Year	516
Average Annual Burden Rate - Level 1	$80,611
Average Annual Burden Rate - Level 2	$110,484
Average Annual Burden Rate - Level 3	$144,988

APPENDIX C.
GLOSSARY OF TERMS USED IN THE STUDY

Term	Definition
Company	See enterprise.
Desktop / Desktop Computer	A PC used in one location at a time that consists of a desktop or tower configuration. Not a laptop or other mobile computing configuration.
Enterprise	The entire firm. For example, if the question asks the number of clients in your enterprise, it refers to the number of clients across all worldwide locations.
Hardware Configuration	A collection of PCs that use the same hardware driver stack.
Intel® Active Management Technology (Intel® AMT)	A solution for improving PC management, Intel Active Management Technology along with third-party applications allows IT to better discover, heal, and protect networked PCs. Intel AMT stores hardware and software information in non-volatile memory. With built-in manageability, Intel AMT allows IT to discover assets even while PCs are powered off. In addition, Intel AMT provides out-of-band management capabilities to allow IT to remotely heal systems after OS failures. Lastly, Intel AMT is able to contain infected clients as well as block incoming threats.

Intel® Virtualization Technology (Intel® VT)	Virtualization enhanced by Intel Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With processor and I/O enhancements to Intel® Core™2 processor with vPro technology-based systems and other Intel® platforms, Intel VT can improve the performance and robustness of today's software-only virtual machine solutions. Specifically regarding networked PCs with third party "virtual appliance" software, businesses will be able to isolate a portion of a managed PC to perform system upgrades and maintenance without interrupting the end-user.
Refresh Cycle	The planned length of time from when PCs are deployed to when they are decommissioned and replaced by new PCs.
Security Incidents	Events where the network is attacked by malware (i.e., viruses, trojan horses, worms, etc.) or is otherwise misconfigured, and IT staff is unable to reach desktop PCs to protect them or get them back online.
Total Cost of Ownership (TCO)	TCO accounts for all the costs associated with procuring, deploying and owning IT systems. TCO includes purchase, lease and maintenance costs for hardware and software. It also includes labor costs associated with planning, purchasing, testing, configuration, deployment, software updates, training and technical support. Some TCO models, such as Gartner's, also include end-user costs such as downtime and peer support. TCO models do *not* take into account the end-user benefits that flow from a technology, such as increased productivity.

APPENDIX D.
ABOUT WIPRO PRODUCT STRATEGY & ARCHITECTURE PRACTICE

The Wipro Product Strategy & Architecture (PSA) practice is a division of Wipro Technologies, a global technology services division of Wipro Ltd. (NYSE-WIT). Wipro PSA practice has more than 12 years experience in researching, analyzing, and documenting the business value of technology solutions. Wipro PSA practice helps enterprises and technology vendors develop innovative and effective product and IT strategies that enable them to expand market opportunities, extend competitive advantage and economize business operations.

In addition to providing consulting services to technology vendors, PSA consultants and technologists work with global enterprises and service providers in architecting and implementing large-scale systems. This practical, hands-on experience gives Wipro PSA practice consultants and technical architects first-hand knowledge that informs their business analysis work.

APPENDIX E.
MEASURING THE VALUE OF INTEL® CORE™2 PROCESSOR WITH vPRO™ TECHNOLOGY IN THE ENTERPRISE: A GLOBAL STUDY

This paper is one of three regionally focused reports sponsored by Intel and produced by Wipro on the positive impact of the Intel® Core™2 processor with vPro technology on desktop management support costs and hardware-related IT support costs. Wipro surveyed IT representatives from 120 companies across North America, Europe and China. Companies ranged in size from 800 to 300,000 desktop users representing nearly 40 industries. The data from all 120 interviews was used to drive the development of the Intel Core 2 processor with vPro technology ROI Estimator, which is a calculator that can be used by any company to project the possible benefits that the company could realize with the Intel Core 2 processor with vPro technology.

For more information on the Intel vPro technology ROI Estimator, see www.intel.com/go/vproestimator

RELATED ANALYSES BY WIPRO PRODUCT STRATEGY & ARCHITECTURE PRACTICE

Recommended Practices: Strategic Management of the PC Installed Base (2004)

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Insights in PC Management in India: The Importance of Controlled Hardware Diversity (2005)

Measuring the Value of Intel® Core™2 Processor with vPro™ Technology in the People's Republic of China (2006)

Measuring the Value of Intel® Core™2 Processor with vPro™ Technology in Europe (2006)

For further information, contact theodore.forbath@wipro.com

or visit www.wipro.com/psa

[1] Intel® Active Management Technology (Intel® AMT) requires the computer to have an Intel® AMT-enabled chipset, network hardware and software, connection with a power source and a network connection.

[2] Intel® Virtualization Technology (Intel® VT) requires a computer system with an enabled Intel® processor, BIOS, virtual machine monitor (VMM), and for some uses, certain platform software enabled for it. Functionality, performance, or other benefits will vary depending on hardware and software configurations. Software applications may not be compatible with all operating systems. Please check with your application vendor.

[3] At time of product introduction, all Intel® Core™2 processor with vPro™ technology-based PCs will be Intel® SIPP-enabled. However, PC manufacturers will be rolling out a wide variety of Intel vPro™ technology-based PC configurations at many performance levels and price points. Check with your vendor regarding Intel® SIPP compliance. See www.intel.com/business/bss/products/client/stableplatform for more information on Intel SIPP (Intel® Stable Image Platform Program).

[4] Available from Wipro at www.wipro.com/webpages/insights/pc_management.htm

[5] Refer to Wipro white papers, *New Insights in PC Management, Measuring the Benefits of Mobile PCs in the Enterprise, Insights on PC Management in India* and *Insights on PC Management in China*, 2003-2005

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